Fig. 10. Front view of same specimen, showing a perfectly closed oral opening.
Fig. 11. Longitudinal median section of another specimen, illustrating tubular structure, enlarged.
Fig. 12. Enlarged surface-drawing of the specimen figured in figs. 1 and 2.

The figures are drawn half the natural size of the specimens with the exception of 11 and 12, which represent magnified structures. Figures 9, 10, and 11 refer to specimens in the British Museum, the remainder being in the Author's collection.

MISCELLANEOUS.

The Nomenclature of Types in Natural History.

By Charles Schuchert and S. S. Buckman.

Practical work on the arrangement and cataloguing of "types" and other museum material has shown us that the present nomenclature is not yet sufficient for critically distinguishing all the different classes of such specimens. Further, some of the terms which have been proposed for the purpose are already employed in other ways—for instance, *homotype* is in use in biology, *monotype* is the name of a printing-machine, *autotype* is the term for a printing-process. We wish, therefore, to submit the following system of nomenclature, and we hope that in making it more complete we have provided a scheme which will render efficient service in the labelling and registration of types and typical material.

The terms printed in broad-faced letters are the additions or modifications for which we are at present responsible. A fuller explanation of all the terms will be found in the 'Catalogue of the Types and Figured Specimens of Invertebrate Fossils in the U.S. National Museum,' a work which has been prepared by Charles Schuchert and is now passing through the press. The present article gives a synopsis of the terms which it has been found necessary to use in connexion with that and similar work.

We now make another suggestion. After the different terms we have placed in circles the contractions which we propose should be used in the actual marking of small specimens, to which it is impossible or inadvisable to affix the full label. Our plan for such contractions is this:—For types of the first class two capital letters; for those of the second class one capital and one small letter; for typical specimens two small letters.

In the definitions which follow, the term description indicates either a description by words or by a picture, or by both combined. For the sake of accuracy, we suggest that the original description by words (type-description) be called the **protolog,** the original

description by a picture (type-figure) the **protograph.** It is obviously more easy to identify actual types from the latter than from the former.

PRIMARY TYPES (**Proterotypes**).

Material upon which original descriptions of species are based.

Holotype (H.T.). The only specimen possessed by the nomenclator at the time; the one specimen definitely selected or indicated by the nomenclator as "the type"; the one specimen which is the basis for a given or cited protograph.

Syntype (more correct than *Cotype*) (S.T.). A specimen of the original series, when there is no holotype.

Paratype (P.T.). A specimen of the original series, when there is a holotype.

Lectotype (L.T.). A syntype chosen, subsequently to the original description, to take the place which in other cases a holotype occupies. (λεκτός, chosen, picked.)

SUPPLEMENTARY TYPES (**Apotypes,** vice *Hypotype* in use).

Material upon which supplementary descriptions of species are based.

Heautotype (vice *Autotype*, in use) (H.t.). A specimen identified with an already described and named species, selected by the nomenclator himself in illustration of his species, such specimen not being recognizable as one of the proterotypes. (ἑαυτοῦ, of his own.)

Plesiotype (P.t.). A specimen identified with an already described and named species, but not selected by the nomenclator himself.

Neotype (N.t.). A specimen identified with an already described and named species, selected to be the standard of reference in cases when the proterotypes are lost, destroyed, or too

imperfect for determination, such specimen being from the same locality and horizon as the holotype or lectotype of the original species.

TYPICAL SPECIMENS (**Icotypes**). (*εικός*, what is like *.)

Material which has not been used in literature, but serves a purpose in identification.

Topotype (t.t.). A specimen of a named species from the locality of the holotype or lectotype—in palæontology from the same locality and horizon.

Metatype (m.t.). A topotype identified by the nomenclator himself.

Idiotype (i.t.). A specimen identified by the nomenclator himself, but not a topotype. (*ἴδιος*, one's own.)

Homœotype (vice *Homotype*, preoccupied) (h.t.). A specimen identified by a specialist after comparison with the holotype or lectotype. (*ὅμοιος*, resembling.)

Chirotype (x. t.). A specimen upon which a chironym is based. (*Chironym*, a MS. name, Coues, 1884.)

In addition to the above we have the use of the word "type" in connexion with genera—a given species is the type of the genus. The classification of such types is as follows :—

TYPES OF GENERA (*Genotypes*).

Genoholotype. The one species on which a genus is founded; of a series of species on which a genus is founded, the one species stated by the author to be "the type."

Genosyntype. One of a series of species upon which a genus is founded, no one species being the genoholotype.

Genolectotype. The one species subsequently selected out of genosyntypes to become "the type."

* *εικός* (gen. *εικότος*), *εικο*—for *εικοτο*,—to make Icotype for euphony.